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July 1, 1963

Dr. Ray Herb  
Physics Department  
University of Wisconsin  
Madison 6, Wisconsin

Dear Ray,

Bob Sachs suggested you might be the most appropriate person to whom I should direct this question.

Suppose a beam of  $H_2^+$  molecules accelerated to X volts, X in the range 1-10,000, and impinged on a metal target of arbitrary thickness. What would be the expected fate of the molecule-ions in the beam? Are there any conditions under which one would project that virtually all molecules would be dissociated, ignoring possible reassociation under the assumption of very low pressure.

These expectations would be of some interest to us in the design of a mass spectrometer approach to analysis for Tritium. We would require some method of distinguishing  $H_2^+$  from  $HD^+$ . (We have other reasons for wanting to use this approach for this analytic problem.)

Any literature that you might refer me to that bears on this question I would be glad to hear about.

Cordially,

Joshua Lederberg  
Professor of Genetics

JL:as

Herb